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Waste & Energy: The Orange Challenge

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A new waste management option called the Hefty® EnergyBag™, a.k.a. "Orange Bag" program is rolling out in parts of the country, including Nebraska. The EnergyBag was a sponsor of the April 22 Omaha Earth Day and the April 30 Bellevue Earth Day activities in 2017. It was also present at the 2017 College World Series.

The Energy Bag program encourages people with non-recyclable plastics to collect them in an Orange Bag along with their recycling. The collected materials will then be shipped off to be "converted into energy to produce cement." Is this a big environmental win? The short and simple answer is a definitive "***No!***"

What's the Buzz?

Figure 1 Headline from an EnergyBag brochure

If the press releases and news reports are to be believed, the EnergyBag program is the next great thing in recycling. The industry journal, Plastics News, says formerly **hard-to-recycle** wastes can now be managed easily. "*Consumers put their hard-to-recycle plastics into special orange colored bags made by Hefty before placing them in their recycling containers. Those bags are segregated after collection and diverted away from more traditional recyclables such as PET and high density polyethylene containers.*
The program targets a variety of plastics not typically recycled, including flexible packaging, meat and cheese packaging, expanded polystyrene food packaging and cups, other plastic cups, plates and cutlery, cereal and cake mix liners, straws and stirrers, for example." Clearly, this article says the Orange Bag makes difficult-to-recycle material less difficult to recycle.

Keep America Beautiful joined forces with Dow in 2017 to promote the Orange Bag program. Brenda Pulley, senior vice president of recycling for Keep America Beautiful is quoted in the KAB press realease, *Dow Launches Grant Program* ***to Increase Plastics Recycling***, as saying, "At Keep America Beautiful, we look for innovative ways to promote and improve ***recycling*** and other approaches to divert waste from landfills."

Waste Today staff put together an article that also ran in Recycling Today. In it they quote collaborator Recyclebank CEO Javier Flaim as describing the Orange Bag program as a "*recycling alternative*." This raises the question – are reports right in calling the EnergyBag recycling? Or is it a recycling alternative?

Recycling? Or Recycling *Alternative*? What's the difference?

Recycling is "*the process of collecting and processing materials that would otherwise be thrown away as trash and turning them into new products*," according to the US Environmental Protection Agency (EPA). EPA's 2016 Recycling Economic Information Report offered this improved definition intended to better capture life cycle costs: "*Recycling is defined as the **recovery of materials**, such as paper, glass, plastic, metals, construction and demolition (C&D) material and organics **from the waste stream** (e.g., municipal solid waste), **along with the transformation of materials**, to make new products **and** reduce the amount of virgin raw materials needed to meet consumer demands*."

> *"Example 3: A container can be burned in incinerator facilities to produce heat and power. It cannot, however, be recycled into another product or package.* ***Any claim that the container is recyclable would be deceptive.****"*
>
> - FTC Guide for the Use of Environmental Marketing Claims

Note the steps to qualify as recycling: 1) capture a recyclable waste, 2) transform the waste, i.e. reprocess it, and 3) make a new product which ***also*** reduces the amount of raw materials needed.

The EnergyBag is a container of waste destined for a facility that burns it as a fuel, a.k.a. *incineration for energy recovery*. Is *incineration for energy recovery = recycling*? No, not according to the Federal Trade Commission's Guides for the Use of Environmental Marketing Claims, issued to help marketers avoid *greenwashing*, or in the words of FTC, to "ensure the claims they make are true and substantiated in order to avoid deceiving consumers." From the Guide: "*Example 3: A container can be burned in incinerator facilities to produce heat and power. It cannot, however, be recycled into another product or package.* ***Any claim that the container is recyclable would be deceptive.****"*

Figure 2 P2RIC Rendition of the Waste Management Hierarchy

All waste management options are alternatives to each other, so landfill *disposal* or deep well injection or *incineration* are all therefore *recycling alternatives*. But all options are **not** equal. Remember the popular "3 R's", i.e., *Reduce, Reuse, Recycle*? It's catchy and oft-used, but not everyone understands it represents a *prioritized* list – one putting *recycling as the **least** preferable option* of the three.

The best choice, known as "source reduction," "*is fundamentally different and **more desirable** than waste management and pollution control*[1]." *Reusable* containers are one example of source reduction; they have far

[1] A federal congressional finding contained in the 1990 Pollution Prevention (P2) Act.

superior environmental benefits compared to *recycled* ones; in fact, the environmental impact of recycling is not much different than original manufacturing according to this study. "Lightweighting" containers is an outstanding *reduction* activity because it uses less raw material with **each and every container** – while very few plastics are pulled from the waste stream, 9.5% for recycling and 15% for incineration; the rest goes to landfills.

Another successful strategy for reducing the increasing amount of plastic waste is for manufacturers to take responsibility for their products and design for de-manufacturing and reuse or design for recycling. Interestingly, Dow has such a product.

Recycling v. Incineration or Disposal: Which is Better?

It's worth repeating: *Recycling* is ***not*** the best thing you can do for the environment; the best thing to do is *preventing* the waste from happening in the first place. Even so, *recycling* is better than *treatment* or *disposal* alternatives. Since *incineration* is but one kind of *treatment*, *recycling* waste is better than *incinerating* waste according to an oft-used heuristic called the Waste Management Hierarchy.

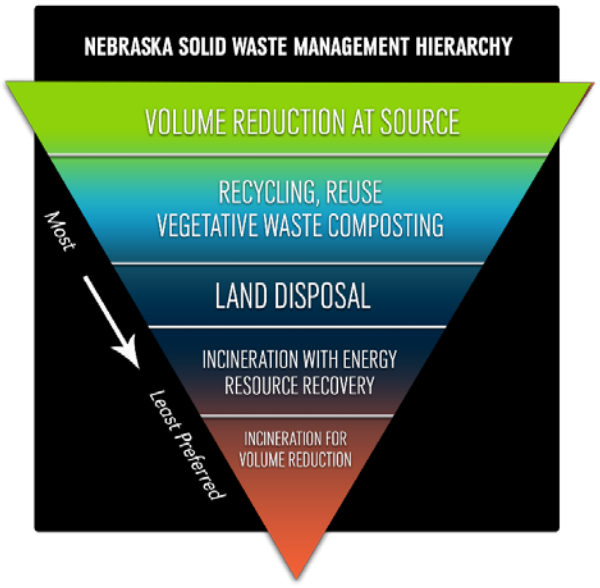

Figure 3 The Nebraska Solid Waste Management Hierarchy

Several studies perform comparisons of recycling to disposal and to incineration – and each explains that *source reduction* is the best option and that recycling is better than incineration or disposal. But studies differ in how much better *recycling* is than *incineration* or *disposal*.

According to Nebraska Revised Statute 13-2018 *Solid Waste Management Hierarchy*, the *incineration for energy recovery* alternative is the next-to-least preferred option. *Recycling* is better than that. Importantly, since 1992 in Nebraska, ***disposal*** in the landfill **is better than *incineration***.

According to Nebraska law *incineration* like the EnergyBag program is simply ***less*** preferable than *landfilling* as a waste management option. Comparing each from a risk management standpoint explains why; the inert plastics put in a landfill won't decompose for hundreds of years – well after climate change, accelerated by *incineration* of waste among other things, has remade the world as we have known it. Think of landfill *disposal* as safe carbon storage, while *incineration* accelerates greenhouse gas (and other pollutants) emissions into the atmosphere.

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Both Nebraska state law and common sense indicate *disposal* of these hard-to-recycle plastics is a better option than *incineration* for "End-of-Life" management.

Never Mind the Hierarchy – What is the Problem?

EnergyBag promotional materials encourage people to "***Recycle*** *your Hefty® EnergyBag™ orange bags for long-term environmental and economic results*" – so far, EnergyBag promoters have not substantiated this claim by showing how improvement to the environment results from Orange Bag use.

Disposal of an inert item in a modern landfill releases fewer pollutants than incineration. Demonstrating environmental benefits will require performing a life cycle assessment (LCA), which is complicated. The uncertain risk of plastics incineration is tied to numerous unknown additives processed into plastics – additives like the colorants for the eye-catching packaging, the polymers to give strength at low weight or to make a plastic more flexible, etc… How many additives are in the mix, how well does the combustion break them down, and what are the products of combustion that incineration creates? Historically, fuels from wastes have carried with them a high level of concern about risks to human health and the environment; the use of wastes as fuels in cement kilns has been controversial as well.

Suggestions for Small Business

Ultimately the answer to the question, "Does the Orange Bag provide an environmental benefit?" is quite simply, "**No**." Nebraska businesses should be aware of their state law giving a 25-year waste management preference to *disposal* over *incineration*. Additionally, EnergyBag promoters began a deceptive campaign to encourage adoption instead of showing how incineration offers genuine environmental and economic benefits.

Business owners and managers are busy people, and more focused on their core business than subtle distinctions related to waste management. The following best practices are tactics used by leading organizations:

Best Business Practices

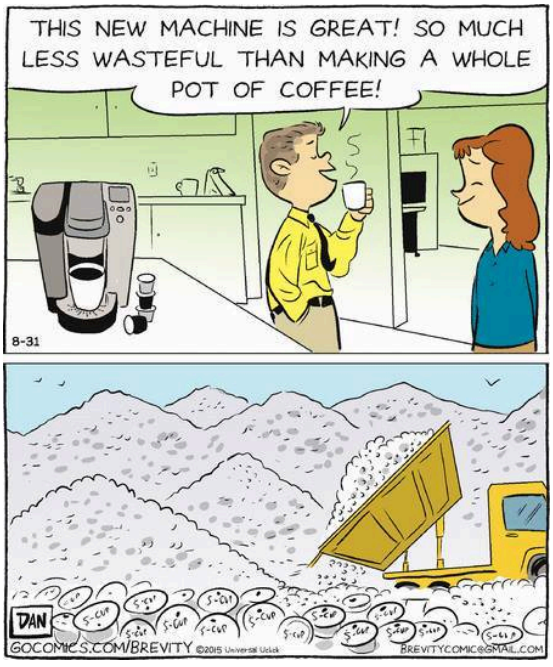
1. Fight Waste!
    a. Manage the Supply Chain
    b. Streamline Processes
    c. Create a Lean/Green Team
    d. Check with Qualified Content Experts
2. Manage Waste Wisely.
3. Branding, Yes. Greenwashing, No.

Fight Waste!

Disposal, *incineration*, and *recycling* are ways of ***managing*** waste – good businesses find savings by ***eliminating*** waste instead. Thoughtful businesses work to maximize material utilization and resource efficiency, reducing the need to pay for a material and then pay more to throw it away.

Opportunities to reduce waste by increasing resource productivity occur throughout the product lifecycle. Tactics include:

1. **Manage the Supply Chain:** One way to avoid costly add-on solutions to waste management is to focus more on eliminating waste in the supply chain. This tactic is known generally as Environmentally Preferable Purchasing (EPP). Businesses can choose among suppliers to reduce packaging, right-size quantities, schedule material flow, identify safe substitutes, and arrange for product "take back" of used or obsolete items.
2. **Streamline Processes*:*** Many organizations have found significant productivity improvement and waste reduction through Lean and other continuous improvement programs. Unfortunately, people who face decisions about waste often spend more time looking for and lamenting poor ***external*** recycling infrastructure than making changes to existing ***personal*** habits or ***organizational*** processes creating waste. Change is hard and people are busy. Even if a business can be encouraged to act, it often chooses to spend more to hire an additional, add-on Rube Goldberg-y waste handling step like recycling rather than invest in cost saving system/process redesign resulting in greater resource efficiency with a positive return on investment.
3. **Create a Lean/Green Team:** Ferreting out and eliminating waste is most successful when it is a group effort. Senior leadership should be involved, they will help align team goals with organizational mission and leverage resources. Most teams find early, measurable success with energy issues or with visible actions; first steps do not generally require capital input and deliver obvious success. Employee engagement is key – necessary to get buy-in, identify opportunities and celebrate success. An internal, individualized toolkit built from a wide array of credible resources helps support and guide teams.
4. **Check with Qualified Content Experts*:*** Improved productivity enhances not only organizational bottom line, but overall community economic competitiveness. This recognition drives several publicly funded programs to help businesses find and reduce waste. NBDC's Pollution Prevention Regional Information Center works directly with waste minimization technical assistance providers in Nebraska, Iowa, Kansas, and Missouri. These university, state, and local programs have professional expertise in the many ways to increase business resource productivity.



Manage Waste Wisely

Lessons from the School of Hard Knocks*:* Late last century many electric utilities in the region learned a jarring lesson about material responsibility. Rose Chemical in Missouri had convinced utilities to send transformer waste oil to them and they would treat and dispose the waste properly. Instead, once paid the Rose Chemical operators vanished, but the stockpile of untreated waste was left behind, creating a superfund site and cleanup bill for every Rose Chemical customer. In other words, utilities who had not

done *their due diligence of knowing where their waste went and how it was handled* paid many times over to properly dispose of the waste.

Responsible businesses accept a cradle-to-grave obligation for the materials they use. Mercenary marketers have popularized an attractive term, *Zero Waste*, to describe a facility program directing its wastes away from landfills. Waste generators should "trust but verify" facilities receiving their waste received will be *treated in an environmentally safe manner*. Generators ought to also be able to explain how their actions will provide an environmental benefit, i.e., reduce risk to human health and the environment.

Branding, Yes. Greenwashing, No.

Greenwashing is the practice of making an unsubstantiated or misleading claim about the environmental benefits of a product, service, technology or company practice. Greenwashing can make a company appear to be more environmentally friendly than it really is. Achieving a "green" brand to attract a wider market is a powerful incentive these days. Making a the claim without delivering harms not only the company, but the market trust of terms.

If a company wants to position itself as ethical, responsible, contributing to community betterment, etc., (and who wouldn't), operating with an eye towards positive environmental impact is an essential part of the mix. The "green" movement has shifted and evolved over the years, moving to the point where sustainability, i.e., a "triple bottom line" focus on profits, people, and planet, is now an integral part of professional codes of ethics and of undergraduate degrees in engineering and in business.

The aforementioned FTC Green Guides provide a useful tool if one has the patience to go through them. If not, the FTC has thoughtfully provided a summary fact sheet.

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About the Nebraska Business Development Center

NBDC is a cooperative program of the U.S. Small Business Administration (SBA) and the College of Business Administration at the University of Nebraska at Omaha (UNO). NBDC partners with the University of Nebraska at Kearney, University of Nebraska-LIncoln, Wayne State College, and Chadron State College to provide consulting and business support services from offices in Omaha, Lincoln, Kearney, McCook, Grand Island, North Platte, Wayne, Scottsbluff and Chadron.

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